



Development *Alternatives*, Inc.



**Armenian Agribusiness ( ASME )**

## **Armenian Export Floriculture Industry**

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# **I. Executive Summary**

The intent of this project was to assess the competitive potential of the Armenian flower industry, and to provide the technical assistance that will allow the existing growers to have a high quality packaging and processing system, with a well designed cold chain that can deliver high quality flowers to export markets.

With this in mind, the industry was analyzed for its benefits to the local economy, and for its macroeconomic and microeconomic advantages. It was found that the Armenian flower growers have the potential to be highly competitive, particularly for the flower market in Russia, which is the fastest growing market in the world.

The next element of immediate interest to the industry is a project fomented by the Dutch government to assist the Armenian flower industry. While this has a putative value of nearly 700,000 Euros, and will bring planting material, equipment, and technical assistance to the growers, the design of the project contains some elements that may not operate in the best interests of the local growers. These are detailed in Section III A, and must be watched very carefully.

Specific suggestions were then made for flower agricultural, processing, and packaging practices. The section for agricultural practices is abbreviated, as this is the area in which the Dutch are very good, and we presume that they will be focusing here in the initial stages. The processing and packaging sections are more extensive, as these have as much to do with the way the local industry organizes itself. This includes the selling and marketing areas as well. These areas all hold the potential to bring significant benefits to the industry, if done well, and to cause remarkable damage, if done poorly, and must be watched very closely as the industry begins to grow.

In the last section in the main body of the report, I addressed a number of ancillary issues, matters to be considered and dealt with as the Armenian flower growers move forward.

# **II. Potential of Armenian Floriculture**

## A. Industry Benefits

The advantages of having a successful cut flower export industry in Armenia have been clearly pointed out by ASME consultant, Nancy Laws, in her two reports addressing this subject, dated May 2001, and November 2001. In the last three decades, Colombia, Ecuador, and Kenya have developed extraordinarily successful industries, which earn hundreds of millions of dollars per year in foreign exchange, employ tens of thousands of people in rural area ( predominantly women ), utilize environmentally sound agricultural practices on relatively small blocks of land, and create extraordinary local opportunities in the support industries that are needed in these environments. In this same time frame, Costa Rica, Guatemala, Zambia, Zimbabwe, Tanzania and Uganda have all begun to realize these same benefits, though on a much smaller scale than the first three.

Armenia, due to a number of solid macroeconomic and microeconomic advantages, has the opportunity to join these other nations, and become an exporter of high quality cut flowers. This report addresses the immediate issues that are facing the Armenian growers if they wish to move forward in this direction.

## B. Macroeconomic Factors

Armenia enjoys several distinct macroeconomic advantages. Among these are the following:

- i. **Sunlight** – according to previous reports, the luminosity is excellent in the area around Yerevan, with 300-330 days of sunlight per year. This is a very important factor for flower growth and intensity of color.
- ii. **Soil** – the volcanic soil in most of the immediate area is excellent, with appropriate and useful microelements.
- iii. **Water** – Apparently nearly all of the valley around Yerevan has large quantities of artesian water available. This is a

significant advantage, as Colombia has suffered from water availability problems at times.

- iv. **Power Cost** – Electricity is favorably priced, at \$0.04-.05/KWH. However, reliability is questionable at times. Natural gas is said to be distributed widely, however, and is very reasonably priced.
- v. **Geographic Proximity** – Yerevan's Zvartnots International Airport is located just a few hours from many principal flower markets, principally that of the main target – Moscow. This gives the Armenian growers a distinct freight advantage over nearly all of their competitors. They also enjoy a freight advantage to the main Middle Eastern market ( Dubai is 1 ½ hours away ), giving them an advantage over every other major flower producer, as these markets tend not to buy from Israel, the largest producer in the area. We have also been told that Armenian Airlines may give the growers a rate of \$0.40/Kg. into the principal European markets. This needs to be verified, but would be an extraordinary advantage if true.

## C. Microeconomic Factors/Costs

Armenia enjoys some solid competitive advantages in the microeconomic area. Among these are the following:

- a. **Land Costs** – Raw land is reported to cost \$700-1,000/hectare outside of Yerevan. This is an extraordinary advantage, even when compared to Colombia or Ecuador.
- b. **Labor Costs** – Fully loaded costs are currently at approximately \$2.50/day. This is more expensive than Africa, but in the range of Colombia and Ecuador, and of course, far cheaper than the principal competitor – Holland.

- c. **Freight rates** – The combination of the geographic proximity and the low freight rates currently being offered by Armenian Airlines and others into Moscow and other European cities ( in the range of \$0.40-0.60/Kg. to Moscow ) gives the Armenian growers perhaps their largest single competitive advantage. Rates for the Colombians, Ecuadoreans or Israelis into Moscow would range from \$2.50-3.25/Kg., and even for the Dutch it would be in the \$1.50-2.00/Kg. range. ( The significance of this differential can be seen in the Rose business. If the Armenians enjoy a \$2.00/Kg freight advantage over their South American competitors, this amounts to over \$0.10/stem, based on a 16Kg. box and 300 roses/box. This can amount to a 10-20% cost advantage. )
- d. **Local Market** – Though this advantage will only last as long as the domestic production capacity is limited, there currently is a strong local market for several flower varieties, which can absorb the non-exportable grade flowers at very good prices. In fact, the local market for Gerberas offers a higher profit potential than exporting does.
- e. **Operating Costs** – Based upon local conversations, operating costs were determined to be the following:
1. Greenhouse – a high quality glass greenhouse can be built for \$300,000/hectare.
  2. Heating – heating costs \$25,000-35,000/hectare/year.
  3. Labor – Labor costs are \$2.50/day, with 12-15 people needed per hectare.
  4. Materials – Fertilizer and pesticides cost \$25,000-30,000/hectare per year.
  5. Boxes – Boxes are 1,550 Drams for a 125 Stem Rose box, and 2,300 Drams for an 80-100 stem Lily box.
  6. Sleeves – Sleeves are \$2.50/Kg. for 40 sleeves. Roses are packed 20/sleeve, and Lilies are 10-20/sleeve, depending on useful blooms/stem.

7. Duties on planting material brought in from Holland include a 10% Ad Valorem duty and a 20% VAT. This means that Chrysanthemum growers should move to mother plants as quickly as possible, and a meristemming lab should be investigated as soon as the industry can justify it. ( Meristemming is the laboratory process that can most easily be understood as “ cloning “. You are simply taking the highest quality flowers out of your own beds and reducing them to a cellular level under highly antiseptic conditions, and then reproducing those flowers. Nearly all of the large Colombian growers have their own laboratories for this function. )
8. There is an export fee of 0.15%, plus about 7,000-10,000 Drams in fees. In addition, the Phytosanitary Certificate costs 12,000 Drams plus 0.5 Drams per flower.
9. There is apparently a 20% VAT in Russia. But as this would apply to all products entering Russia, given the much lower cost of the Armenia product ( compared to the Dutch product ), this will only enhance their competitive advantage.
10. Given the above assumptions, with yields of 175-225/Sq/M for Roses, the Roses should easily be able to be placed into Moscow at a cash cost of \$0.20-25 per stem, in a market ranging from \$0.35-\$1.00 per stem, depending upon variety and stem length. Carnations and Lilies appear to have the same sort of cost advantage. ( Chrysanthemums ought to have an even greater cost advantage, given the very high labor input of the Chrysanthemums. )

## **III. Recommendations**

### **A. Dutch Project**

A project designed to support and promote the Armenian flower industry has been initiated through the Dutch Ministry of Economic Affairs. Though the project has been delayed for a few months, it is apparently scheduled now to proceed, with planting material and equipment due to arrive in January.

This project is of critical importance to the future of the Armenian flower industry, as obviously the entry of the equipment, planting material, and technical assistance carries a great value. However, it is quite obvious that a great deal of this project works also in the interest of the Dutch, and the AGA and the individual growers must watch the following areas very closely:

- a. **Varieties** – it appears as if the varieties have been chosen primarily for the benefit of the Dutch suppliers and not specifically to take maximum advantage of the local growing conditions and the demands of the most logical market – Moscow. For instance, Iris makes very little sense to plant here, for many reasons. It is a very difficult crop to grow; it is highly seasonal in demand; and they have no experience in cultivating it. In addition, we have no planting of Carnations, the product that has the best reputation in the Russian market. Ideally, a study would have been done of each potential cultivar, determining the growing costs and the suitability for the local conditions, and then this would have been matched with the expected demand and prices of the Moscow market. ( Please see this addressed in my Recommendations, D. 4, ahead. ) In addition, as recommended by N. Laws, experimental work should begin immediately on several other flowers, to understand on a practical basis their adaptability to local conditions. Mr. Hovakimian is investigating this week in Holland the latitude that the AGA has in changing the flowers selected for the program. As soon as we know the results, we can decide what to do at that point.
- b. **Delays** – the project has now been delayed for a few months, and any further delays would mean the possibility of the first harvests coming in too late for the good market

conditions in Russia. This must be watched very carefully, as the prices decrease significantly in the summer months. Given the very high value of the planting materials, it's even possible that it would make more sense to plant vegetables in the greenhouses for a few months, and then plant for the first good season in the fall.

- c. **Marketing Company** – If memory serves me correctly ( from the brief view that we got of the draft project report ), the Marketing Company is intended to be capitalized for around 90,000 Euros, with Soluterra owning 40%, each of the growers owning 10%, and the AGA owning 10%. I presume that these funds will be used to construct a processing facility and cold storage area near the airport. The idea of a central processing facility near the airport is a good one ( please see my Recommendations below ), but the ownership structure makes no sense to me. This organization will definitely need technical expertise in the beginning, as the local industry learns how to properly process and package flowers. But depending upon how the buying and selling is designed, this could be a very profitable company, and there is no reason why the industry should give away 40% of the ownership. I have addressed this issue in the Recommendations-Selling/Marketing section below.

## **B. Farm Practices**

This is an area where I have to assume that the Dutch technical assistants will make their greatest contribution. They are the world masters of greenhouse cultivation, and other than the aspect of managing in a low cost environment ( see Section D., c. below ), their advice should be followed implicitly. We have the active participation of one of the finest breeders in the world ( Schreurs ), and I would have to assume that Soluterra and Agriconsult know what they are doing. So in terms of things like fertilizer practices,

pesticide use, irrigation practices, proper temperature maintenance, populations, pre-plant soil treatment, etc., until and unless we know other wise, this is an area where the Dutch should take the lead.

The main area where I would suggest the greatest amounts of caution would be in the aspect of varieties – I have mentioned in various locations in the report that the Armenian growers should not simply accept the Dutch recommendations, but should do their own economic analyses of each flower variety, supported by experimental local plantings and solid market surveys in Moscow, in order to determine which flowers make the most sense to grow here. The flower business, like all of agriculture, revolves around one shining beacon: the maximization of profits per square meter. And this can only be achieved by paying close attention to the agricultural and marketing facts,

## **C. Processing/Packaging**

This section will address all of the post-harvest practices of the farms.

The processing and packaging of fresh cut flowers is divided into two basic alternatives – field packing, and packing inside a processing center. For instance, chrysanthemums and several other varieties are commonly field packed in Colombia and Ecuador. This means that they are cut in the field, placed inside their sleeves, placed in buckets of water, and taken into the packing plant for final processing. This is a very efficient process, as it keeps a lot of trash out in the field, it places the flowers in their protective sleeves immediately, and also begins the hydration process immediately – all very important steps.

However, while the Armenian industry could probably accomplish some of these steps successfully, it makes far more sense to do a “rough” processing of the flowers, and then bring them into a central processing facility. The four main goals of central processing are:

- a. Establish firm quality control in one location for the first couple of years, and hopefully under the supervision of one of the Dutch technical assistants.
- b. Aggregate volumes in order to pack the boxes that are demanded by the market. The markets are accustomed to “solid packs”, where the entire box is filled with a single variety. Packs other than this are mixed packs that fulfill a specific formula. Both of these packs are very difficult for a small farm to produce ( and remember, as Ms. Laws said in her report, a “small” farm by Colombian standards is 10 hectares! ), and boxes that are not packed in this manner will always receive price discounts in the marketplace.
- c. Aggregate volumes in order to get shipping discounts from the airlines.
- d. Aggregate volumes in order to sell to the best customers. The best customers are often the largest ones, and they have no interest in buying from a supplier with volumes that trickle in on an erratic basis.

Therefore, the following post-harvest practices will be recommended based upon this processing scheme.

## **Farm Processing**

The first goal is to get the flowers into water and into cold storage as quickly as possible. The original Colombia farms actually used mules to bring the flowers into the packing plants, wrapping the flowers in burlap blankets that were placed on the mule’s back.

Now, the flowers are placed in buckets of treated water ( i.e., containing a biocide, or at least with the acidity raised in some manner ) and hauled into the packing plants either via cableway ( a very inexpensive transportation system designed in Central America by the banana companies 40 years ago ), or via carts that are pulled by a small tractor. The Armenian farms are still very small, so I would suggest that the flowers be cut and placed in vases of treated water that are fixed in some kind of cart, that can be pulled by hand directly into the cold storage room. ( Please note that the pH of the water should be examined, as alkaline water can be damaging to the flowers. A target pH of 3.5 should be aimed for. Simple citric acid can be used to lower the pH. )

Please note that this assumes, and thereby strongly recommends, that each farm have its own cold storage, with some form of pre-cooling, no matter how rudimentary. Getting the flowers down to 1-2 degrees C. as quickly as possible is fundamental to flower quality.

The flowers would be held until they reached 1-2 degrees C., and they would then be ready for transportation to the central processing plant. The cold storage areas should be kept at 1-2 degrees C. and 95% Relative Humidity. In addition, some form of “ pre-cooling “ is preferred, which is nothing more than a manner of increasing the air circulation over the flowers with fans or blowers, in order to lower their core temperature as quickly as possible.

I did not see any evidence of the guillotine type knife that is used so successfully in Latin America. I will leave a drawing of one, so that it can be manufactured locally.

Though we are doing only a rough processing job at the farm level, it will still be important to sort the flowers, by variety and by stem length, to make for an easy reception in the processing facility, as these data must be recorded for each grower.

## **Transportation**

The purchase of a refrigerated truck is an absolute requirement. An analysis should be done of the peak volume forecasted for the next 12-18 months, and a truck should be purchased that will have the capability of picking up all of these

flowers and bringing them to the central facility, which will be located on or near the airport. In order to maintain the industry's cold chain, this step cannot be avoided. If the AGA is to truly own and manage the central processing facility, then they are the logical owners of the truck. It simply makes sense to have all of the capital and operating costs that are to be "shared by the industry members to be centralized into one unit, for financial and operating control purposes.

Reusable containers should be purchased for the trip to the processing facility. There are various alternatives for this step. The farms could potentially use the same vases ( or containers of some sort ) for the trip from the greenhouse to the cold storage room and then on into Yerevan. At times, the Colombian growers have used plastic boxes, approximately the size of the export packing boxes, to make this brief trip, as this is a more efficient method of transporting very large volumes short distances in reusable containers. ( The efficiencies are achieved primarily inside the truck. ) In addition, there will not be a quality penalty for being out of water, as the flowers will be immediately recut and hydrated upon entering the processing facility.

## **Central Processing Facility**

The first step inside the central facility will be to formally receive the flowers, to insure that each grower is credited with the exact number of flowers received, by variety, by stem length. This will later be cross-checked against the pack-out, which will sort the flowers by grade ( export grade, local grade, and culls ), to ascertain that all of a farmer's flowers have been accounted for.

The flowers will then need to be recut and hydrated in a treated solution. I strongly recommend that an Armenian translation be done of the appropriate sections of cut flower treatment found in the USDA manual, with the flower part written by Dr. Michael Reid, probably the best known flower care expert in the U.S. This can be downloaded from the USDA website. However, the important points for the specific flower varieties under current consideration are as follows:

**ANTHURIUMS** – The Anthuriums should have already been placed in a biocide ( i.e., 50 ppm hypochlorite ). Then they should be pulsed with 1000 ppm silver nitrate for 10-20 minutes. Then they are rinsed with fresh water, and dipped in a solution of Carnuba wax. The aspect of anthuriums here worries me, as they should never be in temperatures below 12.5 degrees C., and all of the other flowers will be handled at 1-2 degrees C. As it is likely that all Armenian products will be shipped together, this is likely to significantly raise the prospect of chill damage for the anthuriums.

**CARNATIONS** – Carnations are the most ethylene sensitive of all flowers, and they must be treated with 1-MCP ( sold as EthylBloc in the U.S. ) or the traditional treatment, STS ( anionic thiosulfate complex of silver ). The latter has always been effective, but its use is diminishing in Europe and Latin America, due to waste disposal problems with the silver. Carnations are the most cold resistant of all the flowers, and can actually be stored at minus 1 to 0 degrees C. for a few weeks in a closed bud stage, if necessary.

**CHRYSANTHEMUMS** – The Chrysanthemums should have already been stored in a biocide or germicide. Mums are not as ethylene sensitive as Carnations, and do not require the same sort of treatment. There are a few new treatments available for extended stem life, but as there are hundreds of varieties of Chrysanthemums available commercially, I would check with the breeders before making a decision in this area. Chrysanthemums should be stored at 1-2 degrees C. In addition, some varieties of Chrysanthemums have woody stems, and all of the woody material needs to be cut off during processing.

**GERBERAS** – The Gerberas should have already been placed in a biocide ( 40 ppm hypochlorite ), and then can

be pulsed with a 100 ppm silver nitrate solution to extend vase life. They should then be rinsed in clean water, and stored at zero to 1 degree C. The vase life of Gerberas is not nearly as long as Carnations, and they should be moved through the chain quickly. A 6% sugar treatment with 200 ppm 8-HQC has been shown to extend vase life, but can also cause stem elongation during storage. The packaging of Gerberas is as much an art as a science, and this is one area where excellent advice should be sought from the Dutch.

**LILIES** – After the harvest, the Lilies should be treated with either STS or 1-MCP to extend their vase life. In addition, a treatment with a 10% sucrose solution can improve subsequent bud opening. Lilies should also be stored at zero to 1 degree C. Appropriate fungicides can also be used to prevent botrytis. Lilies can actually be stored for up to 4 weeks, if they are treated for 24 hours with 1.6M STS and 10% sucrose, and then stored well at 1 degree C. ( Note: though these long storage periods may sound strange to non-flower folks, this is often done to take advantage of holiday periods, when the prices may double, triple, or quadruple. )

**ROSES** – Some cultivars are ethylene sensitive, and should be treated with 1-MCP or STS, particularly if they are going to be sold to the supermarkets, where they would be exposed to ethylene producing products, such as bananas and apples. The degree of sensitivity should be verified with the breeder. Roses have a longer vase life than most people suspect, but the key here is constant cold temperatures, and then proper recutting and hydration at every step in the process, including the wholesaler and the consumer.

After all of the flowers have been treated, hydrated, and cooled, they are ready for packing. The directions for packing should come from the marketplace, as the

Russian market will probably have a specific sense of how they want their flowers to be packed, in terms of varieties in a box, units/stems in a box, protective practices ( such as sleeves, nets, gel packs in Roses, etc. ). However, I would have the following comments:

**BOXES** – Though there seems at times to be a wild proliferation of box types, the Colombia industry did make progress in trying to standardize to two basic types. These are called a “ full box “ and a “ half box “, and are approximately 41 inches by 10 inches by 20 inches, and 41 inches by 10 inches by 10 inches. They are well constructed, so that they can be stacked at least 8 boxes high on a pallet. These boxes would hold approximately 300 and 150 Roses respectively ( depending upon stem length ), 600 and 300 Carnations, and 40 and 20 bunches of Spray Chrysanthemums. The farm that I managed also began packing our Gerberas in this box, by wrapping the Gerbera blossoms in the plastic mesh nets, and then placing 12 bunches of 10 stems each in a half box, with significant packaging savings.

The advantage of a system like this is that large savings can be realized for the industry by having only two basic boxes in inventory. The boxes can be printed in Russian, with all of the appropriate legal and commercial information that is common for everyone placed in the proper locations. Then the individual flower packs are distinguished with vividly colored labels, visible from a distance in a warehouse, and clearly indicating the contents of the box. This is by far the most cost effective method of managing the boxes and labels. One last caveat: trying to go cheap in the purchase of flower boxes is really a bad idea.

**SLEEVES** – The appropriate sleeves are a key part of the business, as they protect the flowers, and they are an excellent communication medium. A great deal of

information can be extended at a low cost with the sleeves. I could write several pages about this, but it would be better for the Armenian growers to get their own ideas from the Dutch and Russian marketplaces. ( I could also send samples from Miami if wished. )

**LABELS/BRAND IDENTITY** – Please note that there are two kinds of labels. The one referred to above is the shipping label, which indicates the content of the box. Another form of label is essentially an advertising/communication medium, which can be attached to every bunch of flowers. These are normally inexpensive, colorful labels, which will indicate the variety of flowers, the proper care and handling procedures, perhaps their origin, and whatever else you can put on there that is useful and doesn't clutter things up. I would have to assume that these can be manufactured locally at a low cost, and the cost of attaching them is insignificant.

This also brings up the subject of brand identity, and “ branding “. I feel that true branding is virtually impossible in the perishable industry, with its wildly variable quality standards and reality. A brand in the perishable industry serves mainly for the purpose of product identification, as brand loyalty is quite fleeting. However, that being said, it makes sense to develop an Armenian industry brand identity, that will be placed on the box, the sleeves, and the label attached to the bunches. Our goal from the beginning will be consistent quality, and if we really do have the permanent presence of a Dutch technical assistant in the packing house, this should be achievable. And then we will be glad to have an identifiable Armenian flower brand identity on the flowers from the beginning.

**RUBBER BANDS** – This is a small item, but as nearly every bunch of flowers is secured with rubber bands, this is again an item that should be dealt with properly. I

would assume that the visiting Dutch technicians will be able to give good advice here.

## C.Selling/Marketing

As I have indicated above, I strongly support the creation of a central processing and packaging area, and this would also be the locus for the selling and marketing effort, particularly if the AGA is involved in some manner. I have the following comments in this area:

**ORGANIZATION** – I addressed above this issue in the section on the Dutch project. This is an area that holds a great deal of potential for commercial conflicts, conflicts of interest, and handled improperly, could endanger the rapid progress of the industry. Working together holds all of the advantages I mentioned above, but the following are some of the danger areas:

**Ownership** – This was also addressed above. It makes sense to me to have the “founding five” growers hold a 20% share each, as they are the pioneers and the risk takers. They should comprise the Board of Directors (together with the AGA representative and the Dutch representative), and guide the direction of the organization. But the key then is to keep the profitability to a minimum, and essentially act as a Coop, returning the great majority of the operating profits to the growers, or they will have no chance of attracting new growers, which should be the main goal of the company, after processing and shipping very high quality flowers.

**Financial Management** – This can again be handled properly, but only if it's done in a very transparent and arm's length manner. Handled well, there could be three sources of operating earnings: the sale of materials, the sale of local flowers, and the sale of export flowers. The company needs operating funds and capital funds, to manage the flower processing and materials distribution businesses, and to pay for capital improvements. I would charge a transparent markup on materials, such as 5-10%. And I would establish a published reference price for all of the flowers, advancing those funds to the growers upon receipt of the flowers, or within a few days. I would then publish a selling report at the end of every month,

showing the profits made by flower variety and by grade and by market, and then the operating profits would be returned to the growers, again withholding 5-10%, or a sum needed to properly manage the business. ( The selling reports should probably be “ private “, so that a grower only sees the results of his own flowers. ) This treats everyone as fairly as possible, is transparent, gets cash to the growers quickly, and should be attractive to new growers, which is a critical goal.

**Selling** – There will need to be a Local Sales Manager, someone who will manage the sales into the local market. This is a bit tricky, as most of these guys will have been accustomed to selling into the local market already, with established relationships, etc. And there will always be the temptation to avoid the central processing center and ship one’s flowers directly into the local market, particularly if the prices are hot. But that, dear readers, is the nature of the flower business, and probably won’t ever change.

The export selling effort is somewhat more complicated. We currently have no one in Yerevan with expertise in selling into Russia, and the establishment of an office/outlet in Russia ( which is exactly what needs to be done ) is expensive and time consuming. A possible solution has arisen here, in that the management of Vedi Flowers is considering opening a cold storage area and selling office in Moscow. If the growers can bring themselves to give this a try in the beginning, this seems to be the ideal solution, for the following reasons:

The industry does not have to make the investment.

Vedi Flowers needs the volumes to sell, and it is in their self-interest to do the best selling job possible.

This concentrates the Armenian product in one location, making the selling effort in Moscow easier.

If Vedi Flowers does an unacceptable job, the growers can always vote with their feet, and move on to other buyers.

**Marketing/AGA** – Here, we are running into the area of the “ proper “ duties of a trade association. I have mentioned above that a principal focus should be the lobbying with the Armenian government for the two issues addressed. In addition, the purchase

of materials for the Association is a perfectly legitimate task, with a goal of achieving cost savings. ( In fact, in this case, the AGA should consider ceding this responsibility to the new company. ) Industry marketing is also a legitimate effort, and is done by most trade associations in the world. The Dutch Flower Council is one of the best in the world in this area. It is probably true that this industry is still a bit small and underfunded for this effort. But hopefully the time will come soon to begin a marketing effort in Russia on behalf of Armenia flowers.

There is one area that is clearly NOT within the appropriate purview of a trade association, and that is in the selling of industry product. Conflicts and danger are rife in this area, and no one connected with a trade association can afford to get close to these kinds of commercial efforts. I don't see a big problem in having the head of the trade association sit on the Board of this company, and the head of the company will manage all of the functions, including the processing and selling ( both locally and for export ). But no trade association director should get any closer to commercialization than that.

## **D. Other**

**1. UPOV** – This point was brought up by N. Laws, but it cannot be stressed highly enough. Armenia is not a signatory to the UPOV treaty, and this is a critical part of being a serious international exporter. At some point, the Armenia growers will be cut off from the high value varieties of the world, as the breeders will not be willing to ship the planting material, which is their registered “ intellectual property “, into Armenia, and you make the serious profits with the best varieties. In addition, this is a legitimate function of a trade association, and AGA would be better off spending time in this area rather than in more commercial areas, as we have heard them talk about. ( This also applies to negotiations for relief from EU duties. That is not the target market at this time, but it is definitely a market of the future, and a solid lobbying effort should be in place for relief from these duties. )

**2. Variety Trials** – The Dutch project allocated the planting material among the five growers based upon some reasoning that we are not privy to. With the exception of the Iris, the reasoning may have been solid, but we won't know. However, I strongly recommend that the five growers get together, and put together a plan for doing variety trials of 10-15 other cultivars. This was also suggested by N. Laws, and she put together an excellent list of suggested products. At this stage in the development of the industry, it just makes sense to collect as much information as possible, and to share it among the industry members, in an effort to determine which varieties are best suited to the local growing conditions.

**3. Economic Studies** – It is my judgment that the economic opportunities here range from solid to exciting. But they badly need capital investment, and to attract the capital investment, we need a much better sense of the true internal economics of the industry. In essence, we need the writing of a prospectus of the Armenian flower industry, detailing the costs, both capital and operating, and potential ROIs, by variety. This will make the attraction of external investment a much easier task. In addition, this could be combined with the economic studies of the individual varieties, to determine which flowers are the most profitable for the Armenian growers to cultivate, and under what conditions.

**4. Accounting Packages** – It is obvious that the farms do not have any kind of accounting system that is tailored to flower farm production. There are many systems such as this that have been developed in Colombia, and that can be purchased very inexpensively. I would suggest that a copy of one of these programs be purchased, and that it be converted to English and adapted for local use. This will give the farms excellent financial and operating control systems that they do not currently have. ( I know most of the folks that developed these programs, and will be happy to try to get a price quote if this is thought to be useful and desirable. )

**5. Quality Control System** – It is very useful to have a quantitative quality control system to use for grading the flowers internally. I would think that the Dutch have some kind of system, and this is something that we will urge the Dutch technical assistant to install. However, I have a system that I designed for use in Miami, and I will leave copies of this for the growers to use, if they so choose.